

IN THE CLAIMS

Please **cancel** claims 1, 2, 4-7, 11, 24-28, 31, and 34-36.

Please **amend** claim 3 with the following rewritten claim:

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3. (AMENDED) An isolated and purified nucleic acid comprising a nucleotide sequence encoding a polypeptide having an amino acid sequence that is at least 50% identical to the amino acid sequence of the *Arabidopsis thaliana* MutS homolog 3 protein (AtMSH3) (SEQ ID NO: 19).

Please **amend** claim 8 with the following rewritten claim:

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8. (AMENDED) The nucleic acid according to claim 3, wherein said polynucleotide interferes with the expression of a plant polynucleotide sequence encoding a polypeptide having at least 50% amino acid identity to AtMSH3 (SEQ ID NO:19) and thereby disables said plant polynucleotide sequence.

[Please **amend** claim 9 with the following rewritten claim:]

9. (AMENDED) The nucleic acid according to claim 8 wherein said polynucleotide interferes with the expression of a

plant polynucleotide sequence is a sense polynucleotide, an antisense polynucleotide or a ribozyme.

[Please amend claim 10 with the following rewritten claim:]

10. (AMENDED) The nucleic acid according to claim 3 wherein said polypeptide disrupts the DNA mismatch repair system of a plant.

Please amend claim 12 with the following rewritten claim:

12. (AMENDED) The nucleic acid according to claim 10 further comprising a regulation element operably linked to the nucleotide sequence encoding said polypeptide, wherein said regulation element causes overexpression of said polypeptide in a cell of said plant.

[Please amend claim 13 with the following rewritten claim:]

13. (AMENDED) A chimeric gene comprising:
a nucleic acid sequence selected from the group consisting of (i) a nucleotide sequence having at least 50% identity to SEQ ID NO:18, and (ii) a nucleotide sequence encoding a polypeptide having at least 50% identity to AtMSH3 (SEQ ID NO:19); and at

least one regulation element operably linked to said nucleic acid sequence.

[Please amend claim 14 with the following rewritten claim:]

14. (AMENDED) The chimeric gene according to claim 13, wherein said regulation element is selected from the group consisting of constitutive, inducible, tissue type specific and cell type specific promoters.

[Please amend claim 15 with the following rewritten claim:]

15. (AMENDED) The chimeric gene according to claim 13, wherein said nucleic acid sequence is (ii) an AtMSH3-encoding sequence, said regulation element causes overexpression of said sequence in a cell of said plant, and said polypeptide disrupts the DNA mismatch repair system of a plant.

[Please amend claim 16 with the following rewritten claim:]

16. (AMENDED) The chimeric gene according to claim 13 wherein said regulation element is selected from the group consisting of 35S, NOS, PR1a, AoPR1 and DMC1.

[Please amend claim 17 with the following rewritten claim:]

17. (AMENDED) plasmid or vector comprising the chimeric gene according to any one of claims 13-16.

[Please amend claim 18 with the following rewritten claim:]

18. (AMENDED) A plant cell stably transformed, transfected or electroporated with the plasmid or vector according to claim 17.

[Please amend claim 19 with the following rewritten claim:]

19. (AMENDED) A plant comprising the cell according to claim 18.

[Please amend claim 20 with the following rewritten claim:]

20. (AMENDED) The plant according to claim 19, wherein said plant is selected from the group consisting of Brassicaceae, Poaceae, Solanaceae, Asteraceae, Malvaceae, Fabaceae, Linaceae, Cannabinaceae, Dauaceae and Cucurbitaceae.

[Please amend claim 21 with the following rewritten claim:]

21. (AMENDED) A process for at least partially inactivating the DNA mismatch repair system of a plant cell comprising:

transforming or transfecting said plant cell with a nucleic acid according to any one of claims 3, 8-10, or 12, growing said cell under conditions that permit expression of said nucleic acid sequence, and inactivating said DNA mismatch repair system of said plant cell.

[Please amend claim 22 with the following rewritten claim:]

22. (AMENDED) A process for at least partially inactivating a DNA mismatch repair system of a plant cell comprising:
transforming or transfecting said plant cell with a chimeric gene according to any one of claims 13-16, growing said cell under conditions that permit expression of said polynucleotide, and inactivating said DNA mismatch repair system of said plant cell.

[Please amend claim 23 with the following rewritten claim:]

23. (AMENDED) A process for at least partially inactivating a DNA mismatch repair system of a plant cell comprising:
transforming or transfecting said plant cell with a plasmid or vector according to claim 17, growing said cell under conditions that permit expression of said polynucleotide, and inactivating said DNA mismatch repair system of said plant cell.

Please amend claim 29 with the following rewritten claim:

29. (AMENDED) A process for altering the DNA mismatch repair system in a plant or plant cell, comprising: transforming or transfecting said plant or plant cell with the chimeric gene of claim 13, growing said plant or plant cell under conditions that permit expression of said nucleic acid sequence, and altering said DNA mismatch repair system of said plant cell.

[Please amend claim 30 with the following rewritten claim:]

30. (AMENDED) The process according to claim 29, wherein said altering comprises inactivating an MSH3 gene of said plant cell.

Please amend claim 32 with the following rewritten claim:

32. (AMENDED) The process according to claim 29, wherein said plant cell is in a plant and has a predetermined cell type or is in a predetermined tissue of a plant, and wherein said altering the mismatch repair system consists of at least partially inactivating said mismatch repair system.

Please amend claim 33 with the following rewritten claim:

DS 33. (AMENDED) The process according to claim 29, wherein said plant cell is in a plant and has a predetermined cell type or is in a predetermined tissue of a plant, and wherein said altering the mismatch repair system consists of enhancing mismatch repair in said cell.

Please add new claim 37 as follows:

DB 37. (NEW) An isolated and purified nucleic acid comprising a nucleotide sequence encoding a plant polypeptide having an amino acid sequence that is at least 50% identical to the amino acid sequence of AtMSH3 (SEQ ID NO: 19).

[Please add new claim 38 as follows:]

38. (NEW) An isolated and purified nucleic acid comprising a nucleotide sequence encoding a polypeptide having the amino acid sequence of AtMSH3 (SEQ ID NO: 19).

[Please add new claim 39 as follows:]

39. (NEW) The nucleic acid of claim 38 further comprising a regulation element operably linked to said AtMSH3-encoding sequence.

[Please add new claim 40 as follows:]

40. (NEW) A plasmid or vector comprising the nucleic acid of claim 39.

[Please add new claim 41 as follows:]

41. (NEW) A plant cell stably transformed, transfected or electroporated with the plasmid or vector according to claim 40.

[Please add new claim 42 as follows:]

42. (NEW) A plant comprising the cell according to claim 41.

[Please add new claim 43 as follows:]

43. (NEW) A process for at least partially inactivating the DNA mismatch repair system of a plant cell, comprising:
transforming or transfecting said plant cell with a nucleic acid comprising a regulation element operably linked to a nucleotide sequence encoding a polypeptide having the amino acid sequence of AtMSH3 (SEQ ID NO: 19);
growing said cell under conditions that permit expression of said AtMSH3-encoding sequence; and